

THE MOTHS OF WISTMAN'S WOOD, DARTMOOR

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Wistman's Wood lies within the Dartmoor National Park at a height of between 380 and 435 metres on a west facing slope in the valley of the West Dart. The climatic environment has been described as oceanic (Simmons, 1965), with an annual rainfall of about 215 cm (falling on about 200 raindays a year) and cool summers. The wood is small, about 7.5 acres, divided into two main sections, (with outlying fragments) and isolated from other woods. Along with Black Tor Copse and Piles Copse, it is high altitude relict oak forest, a remnant of the woodland that covered Dartmoor until about 2500 BC. The area is granite, covered with boulder scree or litter occasionally covered in humus; the leached soils and high wind velocities are inimical to tree growth. Whereas most of the oak woodland (including those woods on the fringes of Dartmoor) in south west Britain is of sessile oak (*Quercus petraea*), here pedunculate oak (*Quercus robur*) is the dominant tree, stunted and twisted, and covered in epiphytes. This distribution of *Quercus robur* may be a relict distribution from the period when soils were more base-rich than now, and possibly an Atlantic type of woodland extending from Britain to Portugal. Also occurring are rowan (*Sorbus aucuparia*), eared willow (*Salix aurita*) and holly (*Ilex aquifolium*), whilst the ground flora includes bilberry (*Vaccinium myrtillus*), greater woodrush (*Luzula sylvatica*) and bramble (*Rubus fruticosus*). The woodland is changing; the trees are growing taller with less epiphytic growth, the wood is becoming easier to penetrate, and there

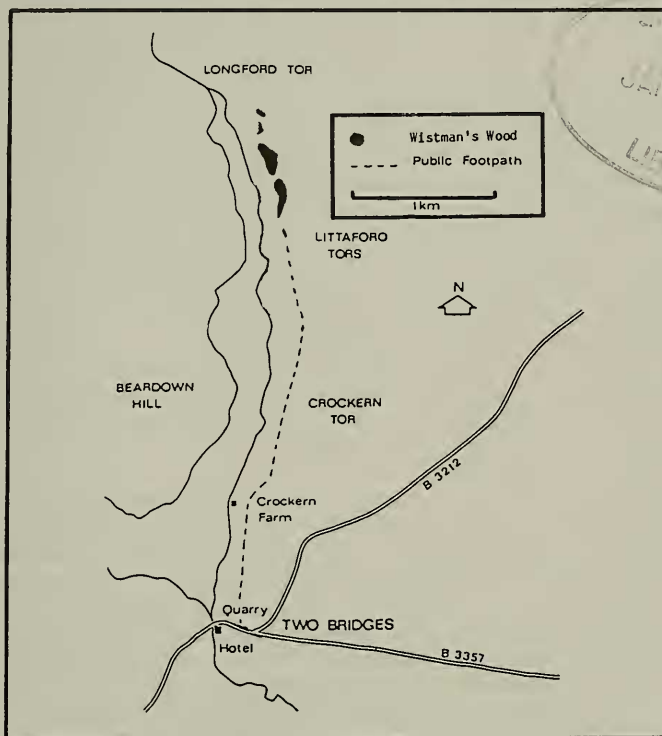


Fig. 1. Wistman's Wood.

is more grazing by sheep which stray in from the surrounding unimproved acidic grassland. Here, as on much of Dartmoor, grow *Calluna vulgaris*, *Vaccinium myrtillus*, and *Molinia caerulea*.

I first visited Wistman's Wood at night on 12 May 1984 with Steven Church and Mark Hadley. We found a way to drive a Land Rover close to the wood, but still had to carry the mothing gear several hundreds of metres. We were looking especially for *Jodia croceago*, which I had found previously in Cornwall (and probably, considering the site where it was found, feeding upon *Quercus petraea*). Unknowingly, we had picked the night of the Ten Tors expedition, when every year hundreds of young people camp overnight on the moor, supported by the armed forces. Not only was the night clear and cold, with a full moon, but far from being alone in the middle of the moor we were surrounded by campers and at one stage a helicopter flew low overhead with a searchlight.

On various trips to the Wood, several capture techniques were used. The chief method of collection was an m.v. light placed on a white sheet at an altitude of about 400 metres where there was a natural gap between the two main sections of woodland. Finding shelter from the wind was a continual problem. Heath traps were set up out of sight of the m.v. light, one at the southern end of the wood at the same altitude, and the other at the lower and northern end of the wood. Beating was also tried, a valuable technique as one species (*Phyllonorycter quercifoliella*, beaten from the epiphytic bilberry) was only found by this method. Sugaring on the lee side of trees and boulders did not work well, presumably because the weather was cold.

I visited Wistman's Wood on six occasions. On 12.v.84, nine species were caught, including a larva of *Dichonia aprilina* as well as two specimens of *Drymonia ruficornis*, one of which (a male) was of the light grey coloration typical of Cornish specimens, the other (a female) being a much darker brown colour, similar to *Drymonia dodonaea*. My next visit was not until 23.v.1986, when no new species were found. On the night of 27.vi.86, however, when the temperature was 9°C after a hot sunny day, 49 species came to light. Two tiny golden-winged moths were probably *Micropterix aruncella*, but unfortunately one lost its abdomen and the other was a female and thus difficult to separate from *M. calthella*; with both, only the base of the costa seemed to be purple. If they had been males, then they would have been *M. calthella*. I would imagine that *M. aruncella* is perhaps more likely here as it occurs in dry open woodland, whereas I HAVE found *M. calthella*, especially on *Ranunculus* spp., in damper woods and meadows. The most interesting record was a single *Microthrix similella*, which I believe has not been recorded from Devon before (and apparently has not been recorded nearer than Hampshire (Goater, 1986). It is a moth of mature oak woodlands, with a central European distribution (Meyrick, 1968). However, a single specimen was found at Westcliff-on-Sea on 25.vii.1956 (Emmet, 1981), which suggests that its distribution is wider than realized; being a canopy feeder, it is seldom seen.

A visit on 20.vii.86 yielded 32 species, including *Choristoneura hebenstreitella*, which probably feeds on oak here, but could feed on bilberry. *Scoparia ambigualis* (which usually flies in May and June) was represented by the small dark form *atomalis* which is characteristic of the moorland of the hills of northern and western Britain and flies later in the year. This may be a moth of the wood or the moor, the larvae presumably feeding on moss. It is a problem with moth-trapping that it is impossible to know whence the moths have flown, especially in such a small wood as Wistman's Wood. The next visit, on 16.ix.86, with a full moon and a cold northerly wind, yielded just three individuals of *Paradiarsia glareosa* and one *Carabus violaceus* (Coleoptera). A visit on 10.x.86 yielded three species, including over 30

Epirrita dilutata. I took 12 of these, covering a wide range of forms, as I was fairly sure that on the external characteristics both *E. christyi* and *E. autumnata* were present. In some, the post-median fascia was clearly angled around the conspicuous discal spot (as I have found to be often the case with *E. autumnata*), in others the band curved round close to the discal spot (as is often the case with *E. christyi*), but in fact all proved, on genitalia examination, to be male *E. dilutata* (Heslop-Harrison, 1932). My last trip was on 23.v.87, when no new species came to light, though the single *Noctua pronuba* was probably a migrant at this time of year.

As far as I am aware, these are the first nighttime moth-hunting visits to Wistman's Wood, but I would not be surprised if people had trapped there before, despite the difficult access. I know of only one other moth record from the wood, a record of *Stilbia anomala* Haw., dating from 1960, although there are a few butterfly records and one beetle record. I have recorded 76 species for the wood (see the Appendix for a complete list), out of which 23 are primarily or solely feeders on oak, and presumably confined to this small woodland. Two of the species caught would feed on heather (*Eupithecia nanata angusta* and *Lycophotia porphyrea*), seven on bedstraw (presumably *Galium saxatile*) including *Deilephila porcellus*, eight on *Salix aurita*, nine on various grasses and three on bracken. Although the larvae of *Eulithis populata* may well feed on the epiphytic bilberry, and *Scoparia ambigualis* on epiphytic moss, there were no specialist epiphytic feeders, and no lichen feeders. The only two Arctiidae present were the ubiquitous *Spilosoma lubricipeda* and *S. luteum*. I expected flight periods to be later here than in the warmer parts of Cornwall, but with so few visits spaced so far apart, I did not find any noticeable differences except the single *Noctua janthina* that came to light on 10.x.86, some 3 weeks later than I've seen it in Cornwall.

Such an isolated wood would provide an excellent site for a population study on a species such as *Microthrix similella*, as emigration and immigration of this species would be unlikely, given that the nearest ancient woodland is several miles distant. The population may well have survived here for centuries, isolated from any other communities by the clearance of trees for agriculture and tin-smelting, surviving several fluctuations in the size of the wood. (It is interesting to note that in 1797 the wood covered merely half an acre and has expanded since then.) This site is probably its highest recorded station in Britain which may well be due to the fact that Dartmoor is the only high altitude region of Britain that has never been glaciated. Relict populations of *M. similella* may occur in Black Tor Copse and Piles Copse, and perhaps even in relict oak woods on Bodmin Moor (itself never glaciated). The species would be expected to occur in the woods that can be found on the edges of Dartmoor, such as Yarnar Wood, as it may well have been from woods such as these that the Wistman's Wood population originated (although *Quercus robur* does not occur in these woods). A similar example of relict populations are the populations of *Luperina nickerlii gueneei* found in Lancashire and Point of Air in North Wales; this species may well have existed during the fourth glaciation of the ice ages on the low-lying land of Liverpool Bay (Beirne, 1947), before the present-day populations became isolated by the flooding of the Bay when the ice melted (the last ice age ending some 11 000 years ago). With *M. similella*, isolation in an apparently inhospitable environment was probably man-made, occurring because of the felling of the surrounding woodland. However, there is an hypothesis that Wistman's Wood was a plantation, with *Quercus robur* being deliberately planted to provide wood for coppicing and tin smelting (Simmons, 1965), in which case *M. similella* may have been introduced into the wood with the trees. The other oak-feeding moths found here all occur widely in Britain in several different habitats, so finding them here was

not surprising. However, it is possible that future moth collecting may well yield further interesting and unexpected species.

ACKNOWLEDGEMENTS

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APPENDIX

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| Gracillariidae | <i>Opisthograptis luteolata</i> L. |
| <i>Phyllonorycter quercifoliella</i> Zell. | <i>Selenia lunularia</i> Hübn. |
| Tortricidae | <i>Odontopera bidentata</i> Cl. |
| <i>Pandemis cerasana</i> Hübn. | <i>Biston betularia</i> L. |
| <i>Choristoneura hebenstreitella</i> Müll. | <i>Alcis repandata</i> L. |
| <i>Aleimma loeflingiana</i> L. | <i>Ectropis crepuscularia</i> D. & S. |
| <i>Tortrix viridana</i> L. | <i>Campaea margaritata</i> L. |
| <i>Olethreutes lacunana</i> D. & S. | Sphingidae |
| Pyralidae | <i>Smerinthus ocellata</i> L. |
| <i>Chrysoteuchia culmella</i> L. | <i>Laothoe populi</i> L. |
| <i>Crambus lathoniellus</i> Zinck. | <i>Deilephila porcellus</i> L. |
| <i>Agriphila inquinatella</i> D. & S. | Notodontidae |
| <i>Scoparia subfusca</i> Haw. | <i>Ptilodon capucina</i> L. |
| <i>Scoparia ambigualis</i> Treit. f. <i>atomalis</i> . | <i>Drymonia ruficornis</i> Hufn. |
| <i>Microthrix similella</i> Zinck. | Lymantriidae |
| Lasiocampidae | <i>Dasychira pudibunda</i> L. |
| <i>Philudoria potatoria</i> L. | Arctiidae |
| Thyatridae | <i>Spilosoma lubricipeda</i> L. |
| <i>Thyatira batis</i> L. | <i>Spilosoma luteum</i> Hufn. |
| Geometridae | Noctuidae |
| <i>Xanthorhoe montanata</i> D. & S. | <i>Agrotis exclamationis</i> L. |
| <i>Scotopteryx mucronata umbrifera</i> Heyd. | <i>Ochropleura plecta</i> L. |
| <i>Scotopteryx luridata</i> Hufn. | <i>Noctua pronuba</i> L. |
| <i>Epirrhoe alternata</i> Müll. | <i>Noctua janthina</i> D. & S. |
| <i>Epirrhoe galiata</i> D. & S. | <i>Paradiarsia glareosa</i> Esp. |
| <i>Cosmorhoe ocellata</i> L. | <i>Lycophotia porphyrea</i> D. & S. |
| <i>Eulithis populata</i> L. | <i>Diarsia mendica</i> F. |
| <i>Chloroclysta truncata</i> Hufn. | <i>Diarsia brunnea</i> D. & S. |
| <i>Electrophaes corylata</i> Thunb. | <i>Xestia baja</i> D. & S. |
| <i>Colostygia multistrigaria</i> Haw. | <i>Anaplectoides prasina</i> D. & S. |
| <i>Colostygia pectinataria</i> Knoch | <i>Cerastis rubricosa</i> D. & S. |
| <i>Epirrita dilutata</i> D. & S. | <i>Lacanobia thalassina</i> Hufn. |
| <i>Eupithecia pulchellata</i> Steph. | <i>Lacanobia oleracea</i> L. |
| <i>Eupithecia nanata angusta</i> Prout | <i>Ceramica pisi</i> L. |
| <i>Eupithecia abbreviata</i> Steph. | <i>Orthosia stabilis</i> D. & S. |
| <i>Petrophora chlorosata</i> Scop. | <i>Orthosia gothica</i> L. |
| <i>Plagadis dolabraria</i> L. | <i>Dichonia aprilina</i> L. |